WMA Mini-Grant Research Project Proposal

LA WMA Group

January 1, 2011 – December 31, 2011

Contract Lead Group and Contact Person(s) (name, phone number, email, and address):

NON PROFIT. Palos Verdes Peninsula Land Conservancy
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This project is in affiliation with what WMA group or groups?

Los Angeles Weed Management Area

List what other Noxious and Invasive Weed Research has been conducted by you or your group:

None

Proposed Project(s)

Project Title:

Quantifying Birds in Newly Restored and Existing Habitats

Project Goal (1/2 page max)

In 2008, the Palos Verdes Peninsula Land Conservancy (PVPLC) initiated a project to monitor the response of bird communities during a habitat restoration project. At that time, the project was funded by a grant from Alcoa Foundation. This grant terminates at the end of May 2010 and will not be renewed. PVPLC is seeking the WMA Mini-Research Grant to continue the bird survey.

The restoration site is located at the Three Sisters Reserve of the Palos Verdes Nature Preserve, Los Angeles County, California. Habitat within the Three Sisters Reserve ranges from quality coastal sage scrub, to areas dominated by invasive plants, specially non-native annual grasses, mustard (*Brassica nigra*) and fennel (*Foeniculum vulgare*). The latter habitat type was targeted for restoration, with on-the-ground activities commencing in early 2009. The restoration plan outlined 13 acres of coastal sage scrub and 8 acres of grassland habitat. Non-native plant removal began in early 2009 and continued through the year. In November and December 2009, approximately 7,930 native plants were installed in the coastal sage scrub section and 778 lbs of native seeds were sown throughout the entire 21 acres.

Through regularly scheduled bird surveys, we expect to develop quantitative data on bird abundance and diversity at a 21-acre coastal sage scrub and grassland restoration site. The project is led by PVPLC with a significant partnership from the local volunteer community through the Palos Verdes/South Bay Audubon Chapter (PV/SB Audubon). The survey will return data on how bird species respond to restoration activities including invasive species removal, how quickly species utilize the newly restored habitat, and how bird utilization of the new habitat compares to that in other areas containing existing grassland and coastal sage scrub habitats that are mixed with invasive plants. In subsequent years, non-native invasive plant removal efforts will continue along with supplemental planting as needed.

Several sensitive species are present within the Three Sisters Reserve including the Federally Threatened California gnatcatcher (*Polioptila californica californica*) and coastal cactus wren (*Campylorhynchus brunneicapillus*), a California State Species of Special Concern. Isolated populations of these two covered species exist on the Palos Verdes Peninsula and, in the case of the California gnatcatcher, is considered a core population for the bird. The data generated by this survey will provide documentation for how the California gnatcatcher and cactus wren, along with other bird species, colonize habitat as it transitions from prominently non-native to restored coastal sage scrub and grassland.

In addition to the primary goal of providing information on the avian communities' response to restoration, the project provides volunteer and educational opportunities. Both PVPLC and PV/SB Audubon desire to foster a hands'-on learning experience, including high school students.

What are the project's long-term benefits and/or local, regional or statewide significance (8 sentence Max):

This project will provide quantifiable data on the avian community's response to habitat restoration within the Palos Verdes Nature Preserve on the Palos Verdes Peninsula. These data can be compared to similar activities in other similar habitats, in particular for the California gnatcatcher and coastal cactus wren populations. Comparisons can be drawn between the formerly invasive-dominated habitat, newly restored habitat, and moderately invaded habitat. Additionally, volunteer participants, who range from teenagers to octogenarians, learn first-hand the intricacies and challenges of habitat restoration in a spectacular outdoor setting. Students are able to use their participation and data for school research projects, learning about scientific field methods in the process. Furthermore, the information generated from the project will serve as a platform for informing the community at large, including resource agencies, local municipalities, and the general public, on the benefits that habitat restoration conveys to wildlife.

Priority Topic Area Being Addressed (from request for proposal announcement, 8 sentence Max):

This project addresses Priority Topic #4, Wildlife and Invasive Plant Interactions. It focuses on quantifying avian use of newly created coastal sage scrub and grassland habitats, in particular how quickly birds occupy the new habitat, compared to nearby areas moderately degraded with invasive plants. The high frequency observations, accompanied with qualitative commentary, will produce data showing the diversity and abundance of bird species utilizing the areas for forage, shelter, and breeding. We have the opportunity to document the response of the two special status species, California gnatcatcher and coastal cactus wren. The project will provide data discerning differences in bird use of newly restored habitat and existing habitat containing invasive species.

Please Describe your in-kind contributions toward research project(s) (4 sentence max):

In-kind services include advertising the bird surveys, expert birders, and volunteer surveyors. PV/SB Audubon publishes the surveys in their newsletter *Hummin'* which is distributed via electronic and hard copy mechanisms. Experienced PV/SB Audubon birders provide expertise during the surveys for correct identification of bird species, both audible and visual. Volunteers support the surveys by providing additional eyes and ears, recording observational data, timing the surveys, and recording weather observations.

Project Objectives, Tasks and Methods

OVERALL OBJECTIVE (4 sentence Max):

The overall objective is to conduct bimonthly surveys utilizing consistent observational methodology to produce quantifiable data on the avian response to formerly highly invaded habitat, new habitat, and existing habitats moderately degraded by invasive plants, within the Three Sisters Reserve. Data generated from the project are archived in a database utilizing formal quality assurance/quality control procedures to insure high quality data that are suitable for statistical assessment. Additionally, the project involves volunteers to conduct the surveys to encourage young and old alike to learn about birds and bird ecology.

Task 1 (2 sentence Max):

Utilize consistent observational methodology to produce quantifiable data.

Methods (8 sentence Max)-

Bimonthly surveys are conducted at 5 sites within the Three Sisters Reserve using 10-minute point observation surveys. Both audible and visual observations within a 75-meter radius of each point are recorded, along with any observed associated behavioral activities. Both visual and audible observations are recorded, pishing is allowed, but no recording devices are used. Surveys commence 1.5 hours after sunrise on the second Thursday and third Saturday each month and are scheduled to continue through June 2013. Birding experts from the partner organization, the PV/SB Audubon, provide identification expertise and help volunteers in bird identification. As the lead organization, PVPLC ensures consistent observational methodology and invokes data management procedures that produce quality data suitable for a quantitative assessment. This methodology was established through a series of 5 weekly preliminary surveys in 2008.

Task 2 (2 sentence Max):

Generate high quality data suitable for statistical assessment.

Methods (8 sentence Max)-

PVPLC Science Director attends all surveys to insure consistent observational methodology is utilized. Data are entered into a database by then subjected to secondary review to insure all data are correctly archived. The database is backed-up regularly and field datasheets are archived to insure all data are retained. The high level repetition of the surveys provides sufficient information to invoke statistical assessment of the data. The resulting data will be assessed for temporal (seasonal and annual) and spatial (site-to-site) trends utilizing the appropriate statistical analyses to confer significance on the conclusions. Data will initially be lumped seasonally (i.e. Winter, Spring, Summer, Fall) to capture seasonal variation and also produce robust numbers for the analyses. Metrics for the analysis will include, but not be limited to, numbers of birds, numbers of species, species indices (e.g. Shannon-Wiener diversity index), bird activity (e.g. foraging, nesting), special status species (i.e. California gnatcatcher), and correlation with the restored habitat quality utilizing vegetation surveys from established transects. Upon completion of the project, including surveys, data assessment, resulting tables and graphs, and write-ups, the data will be publicly available upon request.

Task 3 (2 sentence Max):

Coordinate the participation of PV/SB Audubon, volunteers, and students.

Methods (8 sentence Max)-

PVPLC Science Director maintains a contact list of all participants and directs all communications. The Science Director establishes the survey schedule and distributes it to all, including PV/SB Audubon who advertises the surveys in its newsletter *Hummin'*. Participants are notified regularly of scheduled surveys and sign-up as volunteers for individual surveys. The Science Director works with students to provide assessment support for their school research projects.

Performance Measures

How will you assess and/or analyze your results (8 sentence Max)?

Data will be assessed to discern spatial and temporal trends of bird abundance, diversity, and habitat use. We expect to see increased diversity at abundance at the restoration site along with increased numbers of the California gnatcatcher in the new coastal sage scrub habitat. To assess this expectation, the avian community in the restoration area will be compared to those in the existing habitat utilizing data generated from annual vegetation surveys. Also, changes over time at all sites will be documented through the data assessment. Qualitative bird behavior data will be included in the assessment to provide insight into the birds' use of the newly restored habitat on a spatial and temporal basis. Statistical analysis will be employed, including but not limited to descriptive statistics (e.g. average, diversity indices, standard deviation) and significance testing, utilizing either parametric and non-parametric procedures as appropriate. Tables and graphs illustrating the resulting trends, will be used to accompany the report text and for conveying the results to a wide-ranging audience.

Results of the survey will be distributed to a wide audience range. A report in scientific format will be available for resource agencies, such as the Weed Management Association, California Department of Fish and Game, and the US Fish and Wildlife Service. Additional publications will be generated for direct communication with the public, showing summarized tables and graphs along with associated qualitative information, such as the first time Western meadowlarks were observed in the restoration area (February 2010).

How will your results be disseminated (4 sentence Max)?

A detailed write-up of the survey will be submitted to a general magazine, such as Audubon. Throughout the 5-year survey period, occasional write-ups of the surveys have been and will be published in the PV/SB Audubon's newsletter *Hummin'*. For example, a 2-year assessment will be published in the July/August 2010 issue of *Hummin'* detailing changes observed during the restoration activities and following the newly installed habitat. Finally, PVPLC will include reports of the results in their newsletter *Open Spaces* and will also develop an informational brochure and posters for distribution points within the preserves that PVPLC manages, for outreach events, and on the PVPLC and PV/SB Audubon's websites.